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TOC FLUCTUATION OF MD01-2407 CORE FROM JAPAN SEA AS A PROXIES OF GREENLAND ICE SHEET IN THE GLACIAL PERIODS FOR THE PAST 640 KA

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The authors have measured total organic carbon (TOC) and total nitrogen (TN) contents of sediments of the MD01-2407 core taken from Oki ridge, Japan Sea. The core is 53.35 m long, and is composed of homogenous clay, covering the past 640 ka in age (Kido et al., 2007). The measurement is 1 or 2 cm interval of the core depth which correspond with 130 or 260 years interval. Japan Sea is a semi-closed marginal sea which connected with open seas through 4 shallow straits less than 130 m. This geographical condition is resulted in almost isolated condition of Japan Sea in the low sea level periods, which take place in the glacial periods.

Semi-periodic fluctuation of TOC contents in the sediment core is very similar to the quasi-periodic changes of the $d^{18}O$ of the ice sheet in Greenland (ex. NGRIP ice core) for the last 126 ka. $d^{18}O$ of the ice sheet reflect mainly the distance between the core site and original area of moisture. TOC of sediment is affected mainly by biological productivity and decomposition potential in the sea basin. The biological productivity of Japan Sea may controlled by summer monsoon which causes upwelling and enhance nutrient supply in the southern Japan Sea. This resemblance of both proxies seems to be controlled by the volume of Arctic ice sheets.

The long records of TOC clarified for 640 ka is similar to LR04 marine $\delta^{18}O$ curve and dD of Antarctic ice core (EPICA). This TOC record of the Japan Sea sediments may be an alternative record of Greenland ice volume in the glacial periods for the past 640 ka, although the records is less reliable for interglacial periods due to oxidized decomposition of organic matters in water column.